

CLAIMS

1. An electrically conductive contact holder comprises a supporting member to hold a plurality of electrically conductive contacts, with a contacting surface
5 corresponding to a terminal surface of a to-be-contacted member, on which a plurality of external connecting terminals are arranged, the electrically conductive contacts being arranged on the contacting surface so as to be electrically connected to the external connecting
10 terminals, and being accommodated in holder holes, wherein the supporting member includes
a high thermal expansion supporting frame with a coefficient of linear expansion higher than that of the to-be-contacted member; and
15 a low thermal expansion supporting frame that is arranged adjacent to the high thermal expansion supporting frame in a direction normal to the contacting surface, and has a coefficient of linear expansion lower than that of the to-be-contacted member.
20
2. The electrically conductive contact holder according to claim 1, wherein the high thermal expansion supporting frame and the low thermal expansion supporting frame are formed so that a coefficient of linear expansion of the
25 supporting member, defined based upon the thickness in the normal direction and the coefficient of linear expansion of each of the high thermal expansion supporting frame and the low thermal expansion supporting frame, corresponds to the coefficient of linear expansion of the to-be-contacted
30 member .
3. The electrically conductive contact holder according to claim 1, wherein the supporting member is formed such

that the distribution of the coefficient of linear expansion thereof in the normal direction to the contacting surface is symmetrical about a midplane.

- 5 4. The electrically conductive contact holder according to claim 1, wherein the supporting member includes
 an opening at a region where the electrically
 conductive contacts are arranged; and
 a holder hole forming unit that is set in the opening
10 to form the holder holes therein.
5. An electrically conductive contact holder comprising a supporting member, and an holder hole forming unit that is set in an opening formed in the supporting member and
15 includes a holder hole accommodating an electrically conductive contact electrically connected to an external connecting terminal provided on a to-be-contacted member, wherein any one of the supporting member and the holder hole forming unit has a coefficient of linear expansion
20 higher than that of the to-be-contacted member, while the other has a coefficient of linear expansion lower than that of the to-be-contacted member.
6. The electrically conductive contact holder according to claim 5, wherein the supporting member has a structure
25 where a plurality of plate members having different coefficients of linear expansion are laminated in the thickness direction thereof.
- 30 7. An electrically conductive contact unit comprising:
 electrically conductive contacts that are arranged on a contacting surface opposed to a to-be-contacted member so as to be electrically connected to external connecting

terminals provided on the to-be-contacted member in use;

a supporting member that includes a high thermal expansion supporting frame with a coefficient of linear expansion higher than that of the to-be-contacted member

5 and a low thermal expansion supporting frame that is arranged adjacent to the high thermal expansion supporting frame in a direction normal to the contacting surface and has a coefficient of linear expansion lower than that of the to-be-contacted member; and

10 a circuit board that is electrically connected to the electrically conductive contacts and generates an electric signal supplied to the to-be-contacted member.

8. The electrically conductive contact unit according to
15 claim 7, wherein the high thermal expansion supporting frame and the low thermal expansion supporting frame are formed so that a coefficient of linear expansion of the supporting member, defined based upon the thickness in the normal direction of each of the high thermal expansion
20 supporting frame and the low thermal expansion supporting frame and the coefficient of linear expansion thereof, corresponds to the coefficient of linear expansion of the to-be-contacted member, and that the distribution of the coefficient of linear expansion thereof in the normal
25 direction to the contacting surface is symmetrical about a midplane.

9. An electrically conductive contact unit, comprising:
electrically conductive contacts that are arranged on
30 a contacting surface opposed to a to-be-contacted member so as to be electrically connected to external connecting terminals provided on the to-be-contacted member in use;
a holder hole forming unit where holder holes are

formed to accommodate the electrically conductive contacts;
a supporting member that supports the holder hole forming unit; and

a circuit board that is electrically connected to the
5 electrically conductive contacts and generates an electric signal supplied to the to-be-contacted member, wherein

the holder hole forming unit and the supporting member are formed so that one thereof has a coefficient of linear expansion higher than that of the to-be-contacted member,
10 while the other has a coefficient of linear expansion lower than that of the to-be-contacted member.

10. A method for manufacturing an electrically conductive contact holder including a supporting member formed by
15 stacking a plurality of plate members in layers and a holder hole forming unit set in an opening formed in the supporting member, in which holder holes are formed to accommodate electrically conductive contacts that are electrically connected to external connecting terminals
20 provided on a to-be-contacted member, the method comprising:

an opening forming step of forming openings in the respective plate members;

a supporting member forming step of joining the
25 plurality of the plate members formed with the openings in the thickness direction of the plate members to form the supporting member;

a fixing step of fixing the holder hole forming unit to the inner surface of the opening of the supporting
30 member formed; and

a holder hole forming step of forming the holder holes in the holder hole forming unit.

11. The method for manufacturing an electrically
conductive contact holder according to claim 10, wherein
the plate members are joined together by diffusion bonding,
the holder hole forming unit is fixed by soldering, and the
5 supporting member forming step and the fixing step are
simultaneously conducted.